

We Claim:

1. A woven sculpted fabric for the manufacture of a tissue web having a tissue

5 contacting surface including at least a first group of strands and a second group of strands wherein the first group of strands extend in a first direction and the second group of strands extend in a second direction and the first group of strands are adapted to produce elevated floats and depressed sinkers, defining a three-dimensional fabric surface comprising:

10 a) a first background region having a set of substantially parallel first elevated floats separated by a set of substantially parallel first depressed sinkers, comprising first depressed sinkers positioned between adjacent first elevated floats and comprising first elevated floats positioned between adjacent first depressed sinkers;

15 b) a second background region having a set of substantially parallel second elevated floats separated by a set of substantially parallel second depressed sinkers, comprising second depressed sinkers positioned between adjacent second elevated floats and comprising second elevated floats positioned between adjacent second depressed sinkers; and,

20 c) a transition region positioned between the first and second background regions, wherein the first elevated floats of the first background region descend to become the second depressed sinkers of the second background region and the second elevated floats of the second background region descend to become the first depressed sinkers of the first background region.

25 **2.** The woven sculpted fabric of Claim 1, wherein at least one of the first elevated floats overlap at least one of the second elevated floats within the transition region.

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3. The woven sculpted fabric of Claim 1, wherein the direction of the first group of strands is in the machine direction.

4. The woven sculpted fabric of Claim 1, wherein the direction of the first group of strands is at an acute angle to the machine direction.

5. The woven sculpted fabric of Claim 1, wherein the direction of the first group of strands is substantially orthogonal to the second direction of the second group of strands.

6. The woven sculpted fabric of Claim 1, wherein at least one of the first 10 depressed sinkers is a multi-strand first depressed沉器.

7. The woven sculpted fabric of Claim 1, wherein at least one of the second depressed sinkers is a multi-strand second depressed沉器.

8. The woven sculpted fabric of Claim 1, wherein at least one of the first elevated floats is a multi-strand first elevated float.

9. The woven sculpted fabric of Claim 1, wherein at least one of the second elevated floats is a multi-strand second elevated float.

10. The woven sculpted fabric of Claim 1, wherein the transition region has greater surface depth than the first background region.

11. The woven sculpted fabric of Claim 1, wherein the transition region has 25 greater surface depth than the second background region.

12. The woven sculpted fabric of Claim 1, wherein the transition region is filled.

13. The woven sculpted fabric of Claim 1, wherein the transition region has 30 substantially the same surface depth of the first background region.

14. The woven sculpted fabric of Claim 1, wherein the transition region has substantially the same surface depth of the second background region.

5 **15.** The woven sculpted fabric of Claim 1, wherein the maximum plane difference of the first elevated floats is at least about 0.12 mm.

10 **16.** The woven sculpted fabric of Claim 1, wherein each of the first elevated floats has a width, and the maximum plane difference of the first elevated floats is at least about 30% of the width of one of the first elevated floats.

17. The woven sculpted fabric of Claim 1, wherein the maximum plane difference of the second elevated floats is at least about 0.12 mm.

15 **18.** The woven sculpted fabric of Claim 1, wherein each of the second elevated floats has a width, and the maximum plane difference of the second elevated floats is at least about 30% of the width of one of the second elevated floats.

20 **19.** The woven sculpted fabric of Claim 1, wherein the first background region has a first background texture and the second background region has a second background texture.

25 **20.** The woven sculpted fabric of Claim 19, wherein the first background texture of the first background region is substantially the same as the second background texture of the second background region.

21. The woven sculpted fabric of Claim 19, wherein the first background texture of the first background region is different than the second background texture of the second background region.

22. The woven sculpted fabric of Claim 1, wherein each first elevated float has a first beginning point and a first ending point, each second elevated float has a second beginning point and a second ending point wherein the first ending point of at least one of the first elevated float is separated in the transition region by a gap

5 having a width ranging from about 10 mm to about negative 10 mm from the second ending point of at least one of the nearest second elevated floats.

23. The woven sculpted fabric of Claim 22, wherein the gap has a width ranging from about 4 mm to about negative 4 mm.

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24. The woven sculpted fabric of Claim 1, wherein the maximum distance between adjacent first elevated floats is at least about 0.3 mm.

25. The woven sculpted fabric of Claim 24, wherein the maximum distance

15 between adjacent first elevated floats is greater than the width of one of the adjacent first elevated floats.

26. The woven sculpted fabric of Claim 1, wherein the maximum distance between adjacent second elevated floats is at least about 0.3 mm.

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27. The woven sculpted fabric of Claim 26, wherein the maximum distance between adjacent second elevated floats is greater than the width of one of the adjacent second elevated floats.

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28. The woven sculpted fabric of Claim 1, wherein the woven sculpted fabric is a forming wire.

29. The woven sculpted fabric of Claim 1, wherein the woven sculpted fabric is a through air drying fabric.

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30. The woven sculpted fabric of Claim 1, wherein the woven sculpted fabric is a transfer fabric.

31. The woven sculpted fabric of Claim 1, wherein the tissue contacting surface of the woven sculpted fabric is non-macroscopically monoplanar.

32. A woven sculpted fabric for the manufacture of a tissue web having a tissue contacting surface including at least a first group of strands and a second group of strands wherein the first group of strands extend in a first direction and the second group of strands extend in a second direction and the first group of strands are adapted to produce elevated floats and depressed sinkers, defining a three-dimensional fabric surface comprising:

- 10 a) a first background region having a set of substantially parallel first elevated floats separated by a set of substantially parallel first depressed sinkers, comprising first depressed sinkers positioned between adjacent first elevated floats and comprising first elevated floats positioned between adjacent first depressed sinkers;
- 15 b) a second background region having a set of substantially parallel second elevated floats separated by a set of substantially parallel second depressed sinkers, comprising second depressed sinkers positioned between adjacent second elevated floats and comprising second elevated floats positioned between adjacent second depressed sinkers; and,
- 20 c) a transition region positioned between the first and second background regions, wherein the first elevated floats of the first background region become the second elevated floats of the second background region and the first depressed sinkers of the first background region become the second depressed sinkers of the second background region.

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33. The woven sculpted fabric of Claim 32, wherein at least one of the first elevated floats overlap at least one of the second elevated floats within the transition region.

5 **34.** The woven sculpted fabric of Claim 32, wherein the direction of the first group of strands is in the machine direction.

35. The woven sculpted fabric of Claim 32, wherein the direction of the first group of strands is at an acute angle to the machine direction.

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36. The woven sculpted fabric of Claim 32, wherein the direction of the first group of strands is substantially orthogonal to the second direction of the second group of strands.

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37. The woven sculpted fabric of Claim 32, wherein at least one of the first depressed sinkers is a multi-strand first depressed sinker.

38. The woven sculpted fabric of Claim 32, wherein at least one of the second depressed sinkers is a multi-strand second depressed sinker.

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39. The woven sculpted fabric of Claim 32, wherein at least one of the first elevated floats is a multi-strand first elevated float.

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40. The woven sculpted fabric of Claim 32, wherein at least one of the second elevated floats is a multi-strand second elevated float.

41. The woven sculpted fabric of Claim 32, wherein the transition region has greater surface depth than the first background region.

42. The woven sculpted fabric of Claim 32, wherein the transition region has greater surface depth than the second background region.

43. The woven sculpted fabric of Claim 32, wherein the transition region is filled.

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44. The woven sculpted fabric of Claim 32, wherein the transition region has substantially the same surface depth of the first background region.

45. The woven sculpted fabric of Claim 32, wherein the transition region has 10 substantially the same surface depth of the second background region.

46. The woven sculpted fabric of Claim 32, wherein the transition region is filled with a polymeric resin.

15 **47.** The woven sculpted fabric of Claim 32, wherein the maximum plane difference of the first elevated floats is at least about 0.12 mm.

20 **48.** The woven sculpted fabric of Claim 32, wherein each of the first elevated floats has a width, and the maximum plane difference of the first elevated floats is at least about 30% of the width of one of the first elevated floats.

49. The woven sculpted fabric of Claim 32, wherein the maximum plane difference of the second elevated floats is at least about 0.12 mm.

25 **50.** The woven sculpted fabric of Claim 32, wherein each of the second elevated floats has a width, and the maximum plane difference of the second elevated floats is at least about 30% of the width of one of the second elevated floats.

51. The woven sculpted fabric of Claim 32, wherein the first background region has a first background texture and the second background region has a second background texture.

5 52. The woven sculpted fabric of Claim 51, wherein the first background texture of the first background region is substantially the same as the second background texture of the second background region.

10 53. The woven sculpted fabric of Claim 51, wherein the first background texture of the first background region is different than the second background texture of the second background region.

15 54. The woven sculpted fabric of Claim 32, wherein each first elevated float has a first beginning point and a first ending point, each second elevated float has a second beginning point and a second ending point wherein the first ending point of at least one of the first elevated float is separated in the transition region by a gap having a width ranging from about 10 mm to about 0 mm from the second ending point of at least one of the nearest second elevated floats.

20 55. The woven sculpted fabric of Claim 54, wherein the gap has a width ranging from about 4 mm to about 0 mm.

25 56. The woven sculpted fabric of Claim 1, wherein the maximum distance between adjacent first elevated floats is at least about 0.3 mm.

57. The woven sculpted fabric of Claim 56, wherein the maximum distance between adjacent first elevated floats is greater than the width of one of the adjacent first elevated floats.

30 58. The woven sculpted fabric of Claim 1, wherein the maximum distance between adjacent second elevated floats is at least about 0.3 mm.

59. The woven sculpted fabric of Claim 58, wherein the maximum distance between adjacent second elevated floats is greater than the width of one of the adjacent second elevated floats.

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60. The woven sculpted fabric of Claim 32, wherein woven sculpted fabric is a forming wire.

61. The woven sculpted fabric of Claim 32, wherein woven sculpted fabric is a through air drying fabric.

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62. The woven sculpted fabric of Claim 32, wherein woven sculpted fabric is a transfer fabric.

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63. The woven sculpted fabric of Claim 32, wherein the tissue contacting surface of the woven sculpted fabric is non-macroskopically monoplanar.

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